

**II. AMENDMENTS TO THE CLAIMS:**

Please cancel claims 43 and 46 without prejudice. Kindly amend claims 17-21 and 45, and add new claims 47 and 48 as follows.

The present claims replace all prior versions of claims in the above-captioned application.

**Listing of Claims:**

Claims 1-16 have been canceled.

17. (Currently Amended) A device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles, wherein the device~~it~~ includes:  
\_\_\_\_\_ (a) at least one box to be placed under a~~the~~ vehicle and enclosing master and slave means for projecting two light beams onto a~~the~~ carriageway in two distinct zones;<sub>;</sub> and  
\_\_\_\_\_ (b) distinct means for picking up each of the two light beams after reflection onto the carriageway.

18. (Currently Amended) The detection device according to claim 17, wherein the at least one box, exhibiting a general axis of symmetry ~~(z-z')~~ encloses  
i. a single light source emitting a primary light beam in the direction of the carriageway; and  
ii. at least one photo-sensor for detecting the light after reflection on the carriageway;<sub>;</sub>  
iii. two first optical devices whose optical axes are inclined at a first value ~~( $\alpha$ )~~ with respect to the general axis of symmetry ~~(z-z')~~ of the box, each of the two first optical devices~~being~~ disposed on a~~the~~ path of the primary light beam as the primary light beam~~it~~ exits the optical source, so as to split said primary light beam into two secondary light beams projected onto the carriageway in two distinct zones;<sub>;</sub> and

iv. two second optical devices whose optical axes are inclined at a second value-( $\beta$ )  
with respect to the general axis of symmetry-( $z-z'$ ) of the box ~~are being~~ disposed on the  
path of the secondary light beams after the secondary light beams~~latter~~ have been  
reflected onto the carriageway and before the secondary light beams~~they~~ reach the at  
least one photo-sensor.

19. (Currently Amended) The detection device according to claim 17, wherein the at  
least one box, exhibiting a general axis of symmetry-( $z-z'$ ) encloses

- i. two light sources each emitting a light beam in the direction of the carriageway;~~and~~
- ii. at least one photo-sensor for detecting the light after reflection on the carriageway;~~;~~
- iii. two first optical devices whose optical axes are inclined at a first value-( $\alpha$ ) with  
respect to the general axis of symmetry-( $z-z'$ ) of the box, ~~being each one of the first~~  
two optical devices disposed on ~~at the~~ path of one of the light beams as the one light  
beam~~it~~ exits the corresponding optical source, so as to project said two light beams  
onto the carriageway in two distinct zones;~~;~~ and
- iv. two second optical devices whose optical axes are inclined at a second value-( $\beta$ )  
with respect to the general axis of symmetry-( $z-z'$ ) of the box ~~are being~~ disposed on the  
path of the light beams after the light beams~~latter~~ have been reflected onto the  
carriageway and before the light beams~~they~~ reach the at least one photo-sensor.

20. (Currently Amended) The detection device according to claim 18, wherein the  
first two optical devices and the second two optical devices each include at least one  
lens.

21. (Currently Amended) The detection device according to claim 19, wherein the first two optical devices and the second two optical devices each include at least one lens.

22. (Previously Presented) The device according to claim 20, wherein the lenses are revolution lenses or do not exhibit axial symmetry.

23. (Previously Presented) The device according to claim 21, wherein the lenses are revolution lenses or do not exhibit axial symmetry.

24. (Previously Presented) The detection device according to claim 20, wherein the lenses are of the mineral type.

25. (Previously Presented) The detection device according to claim 21, wherein the lenses are of the mineral type.

26. (Previously Presented) The detection device according to claim 22, wherein the lenses are of the mineral type.

27. (Previously Presented) The detection device according to claim 23, wherein the lenses are of the mineral type.

28. (Previously Presented) The detection device according to claim 20, wherein the lenses are of the organic type.

29. (Previously Presented) The detection device according to claim 21, wherein the lenses are of the organic type.

30. (Previously Presented) The detection device according to claim 22, wherein the lenses are of the organic type.

31. (Previously Presented) The detection device according to claim 23, wherein the lenses are of the organic type.

32. (Previously Presented) The detection device according to claim 20, wherein the box includes a body and an optical unit which carries the lenses.

33. (Previously Presented) The detection device according to claim 21, wherein the box includes a body and an optical unit which carries the lenses.

34. (Previously Presented) The detection device according to claim 32, wherein the lenses are individually mounted on the optical unit.

35. (Previously Presented) The detection device according to claim 33, wherein the lenses are individually mounted on the optical unit.

36. (Previously Presented) The detection device according to claim 32, wherein the lenses are integral with the optical unit.

37. (Previously Presented) The detection device according to claim 33, wherein the lenses are integral with the optical unit.

38. (Previously Presented) The detection device according to claim 28, wherein the optical unit includes a base on which two optical transmission tubes stand and two optical reception tubes.

39. (Previously Presented) The detection device according to claim 38, wherein the body of the box has cavities for receiving the transmission tubes and reception tubes of the optical unit.

40. (Previously Presented) The detection device according to claim 18, wherein the light sources include light emitting diodes emitting in the infrared range.

41. (Previously Presented) The detection device according to claim 19, wherein the light sources include light emitting diodes emitting in the infrared range.

42. (Previously Presented) The detection device according to claim 18, wherein the light sources and the photo-sensors are mounted by SMD or flip-chip on a printed circuit board.

43. (Canceled)

44. (Previously Presented) The detection device according to claim 17, wherein the light beams are focussed at the surface of the carriageway.

45. (Currently Amended) The device according to claim 18, wherein the first two optical devices and the second two optical devices include a screen disposed obliquely in front of the light sources and pierced with a hole.

46. (Canceled)

47. (New) A device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles, wherein the device includes:

(a) at least one box to be placed under a vehicle and enclosing master and slave means for projecting two light beams onto a carriageway in two distinct zones; and

(b) distinct means for picking up each of the two light beams after reflection onto the carriageway, wherein the at least one box, exhibiting a general axis of symmetry, encloses

i. two light sources each emitting a light beam in the direction of the carriageway;

ii. at least one photo-sensor for detecting light after reflection on the carriageway;

iii. two first optical devices whose optical axes are inclined at a first value with respect to the general axis of symmetry of the box, each of the two first optical devices disposed on a path of one of the light beams as the one light beam exits the corresponding optical source so as to project the two light beams onto the carriageway in two distinct zones; and

iv. two second optical devices whose optical axes are inclined at a second value with respect to the general axis of symmetry of the box are disposed on the path of the light beams after the light beams have been reflected onto the

carriageway and before the light beams reach the at least one photo-sensor, wherein the light sources and the photo-sensors are mounted by SMD or flip-chip on a printed circuit board.

48. (New) A device for detecting crossing of a horizontal lane demarcation mark of a carriageway for motor vehicles, wherein the device includes:

- (a) at least one box to be placed under a vehicle and enclosing master and slave means for projecting two light beams onto a carriageway in two distinct zones; and
- (b) distinct means for picking up each of the two light beams after reflection onto the carriageway, wherein the at least one box, exhibiting a general axis of symmetry, encloses
  - i. two light sources each emitting a light beam in the direction of the carriageway;
  - ii. at least one photo-sensor for detecting light after reflection on the carriageway;
  - iii. two first optical devices whose optical axes are inclined at a first value with respect to the general axis of symmetry of the box, each of the two first optical devices disposed on a path of one of the light beams as the one light beam exits the corresponding optical source so as to project the two light beams onto the carriageway in two distinct zones; and
  - iv. two second optical devices whose optical axes are inclined at a second value with respect to the general axis of symmetry of the box are disposed on the path of the light beams after the light beams have been reflected onto the carriageway and before the light beams reach the at least one photo-sensor, wherein the first two optical devices and the second two optical devices

include a screen disposed obliquely in front of the light sources and pierced with a hole.